TWO NEW LAND GASTROPODS FROM TEXAS *(ZONITOIDES AND STENOTREMA)*

Richard W. Fullington

Dallas Museum of Natural History
Fair Park Station
Dallas, Texas 75226

ABSTRACT

Zonitoides kirbyi *(Zonitidae) is described from Schulze Cave, approx. 28 miles northeast of Rocksprings, Edwards Co., Texas. It is most closely related in form to* Zonitoides arboreus *(Say) but differs by being larger and glossier with less distinct growth lines.* Stenotrema leai cheatumi *(Polygyridae) is described from Palmetto State Park, Ottine, Gonzales Co., Texas. It differs from the most closely related species in form* Stenotrema leai leai *(Binney) by being much smaller, more depressed, and with a much larger fulcrum.*

An undescribed zonitid was sent to the late Dr. E. P. Cheatum by Dr. Walter Dalquest of Midwestern University, Wichita Falls, Texas. The fossil shells were collected by Dr. Dalquest and his colleagues in Schulze Cave which is located approximately 28 miles northeast of Rocksprings, Edwards County, Texas. Living specimens were later obtained from the site by the author. Dr. Dalquest's report on the statigraphy and vertebrate remains found in the cave, was published in 1969.

According to their report, the cave is of the sinkhole type and "probably formed by solution from a vertical tissue that penetrated two limestone layers of the Upper Cretaceous Edwards formation." The shells were found in association with mammalian bones in a zone of matrix designated as layer C. Many of the shells were stained by yellowish sediments. A part of a bone from a grizzly bear, in this same layer, was sent to the Socony-Mobil Laboratories in Dallas, Texas for dating. The C14 test revealed an age of 9,680 ± 700 years BP, which indicated a late Pleistocene age.

On July 25, 1972, a collecting trip was made by the writer accompanied by Dr. E. P. Cheatum and Wayne Seifert, staff member of the Dallas Museum of Natural History that sponsored the trip. The main purpose of the trip was to ascertain if the species still lived in the cave and if it was extant in the surrounding environs. Equipped with headlights, Seifert and myself entered the cave and, in the same zone from which the fossil shells had been collected, we found living specimens of this species. The living snail is described as follows: the entire pale-grey body was visible through the transparent shell. Each transparent eyestalk was capped by the dark eye. The cave was damp and fungal growths were abundant. Unfortunately, only one living snail was collected and this was an immature form with a shell diameter of 3.19 mm. A diligent search was made of the area surrounding the cave in hopes that we could find the living snail or at least dead shells of this species. None were found, so the origin of this snail remains a puzzle.

This species is named for Mr. Hal P. Kirby, Director of the Dallas Museum of Natural History who has encouraged and greatly aided Molluscan research in the Southwest.

Zonitoides kirbyi *new species*
Figs. 4-6

Description-Shell pale, glossy, translucent, and weakly sculptured with rather evenly-spaced but crowded growth lines which are more pronounced on the basal whorl. Under magnification, fine parallel striae are visible on the upper surface of the whorls exclusive of the embryonic whorl which is smooth. The striae, although present on the lower surface of the

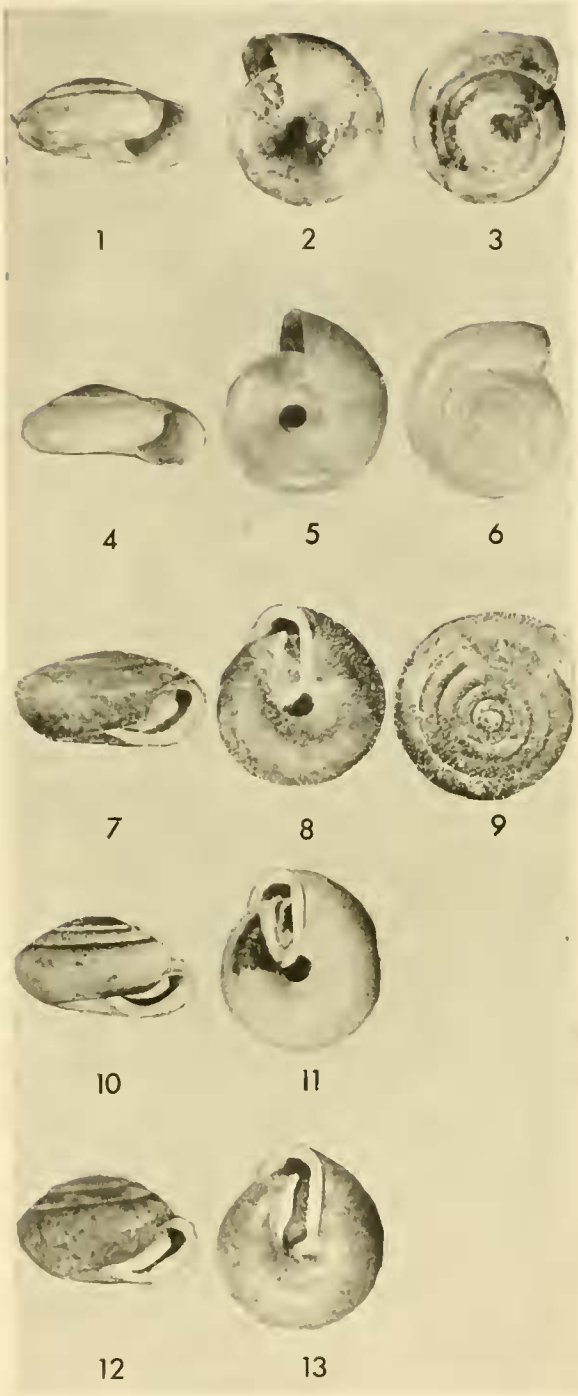

FIG. 1-3, Zonitoides arboreus (Say); x 4.3; FIG. 4-6, Zonitoides kirbyi n. sp.; x 3.8; FIG. 7-9, Stenotrema leai cheatumi n. subsp.; x 2.6; FIG. 10-11, Stenotrema leai leai (Binney); x 2.2; FIG. 12-13, Stenotrema leai aliciae (Pilsbry); x 2.9.

whorls, are more subdued. The umbilicus is contained approximately 3.2 times in the shell diameter. The whorls are well-rounded, the aperture is ovoidal and the peristome is thin. Measurements in mm. of holotype: diameter: 6.3; height: 3.4; aperture height: 2.04; aperture width: 1.53.

Holotype: No. 3286 Dallas Museum of Natural History; paratypes in Delaware Mus. Nat. Hist. No. 72862; paratypes will be deposited in the National Museum of Natural History, Carnegie Museum, Museum of Comparative Zoology, Academy Natural Sciences of Philadelphia, and the Museum of Zoology, University of Michigan. Type locality: Schulze Cave, Edwards Co., Texas, July 25, 1972.

Discussion — *Zonitoides kirbyi* is most closely related in form to *Zonitoides arboreus* (Say) (figs. 1-3), but differs in several respects. *Z. kirbyi* is much larger and glossier with less distinct growth lines. It also has a much larger umbilicus which abruptly expands in the last whorl. The aperture is very ovately-lunate and not deeply rounded as in *Z. arboreus*. *Zonitoides arboreus* abounds in the area immediately surrounding the cave and only dead shells were found inside the cave. *Z. kirbyi* (live & dead shells) is found only in the cave. It appears that *Z. kirbyi* may be a form of *Z. arboreus* that has been microgeographically isolated long enough to become a separate species.

Stenotrema leai cheatumi *new subspecies*
Figs. 7-9

An undescribed polygyrid was collected by Dr. E. P. Cheatum and myself in Palmetto Park at Ottine, Gonzales County, Texas, on November 11, 1971. The locality is an ecologically isolated area that is low, swampy and thickly studded with shrubs and trees. Palmetto plants are extremely abundant. The surrounding environment is typical of the Texan Biotic Province as defined by Blair (1952) but being much drier. The undescribed snails were abundant on the moist ground under palmetto plants and under rotten logs.

Description — The shell is umbilicate, with a low, convexly conoid spire and 5.5 rather closely-set whorls. Except for the embryonic

whorl, the remaining whorls are covered with irregularly-placed growth lines which, although not coarse are more conspicuous on the basal whorl. Under magnification the embryonic whorl is beset with fine radiating lines crossed by delicate striae confined to the embryonic whorl; a few very short hairs are present on the ventral surface of the basal whorl and on the upper surface of the last two whorls. The aperture length is 4.25 mm., and the slightly curved white parietal tooth is 2.38 mm. long, resting obliquely on the exceedingly thin parietal callus. The umbilicus is openly perforate with the exception of a flare-out of the lower lip which covers the inner edge of the umbilicus. The white peristome is thickened within and reflected on its outer and inner margin thus leaving a conspicuous groove just back of the outer lip. The umbilicus is contained approximately five times in the shell diameter. A large white rounded fulcrum is present which extends from the top of the basal whorl to its floor. Holotype measurements in mm.: diameter: 8.2; height: 4.6; No. of whorls: 5.5.

Holotype: No. 3288 Dallas Museum of Natural History; paratypes in the Delaware Mus. Nat. Hist. No. 72861; paratypes will be deposited in the National Museum of Natural History, Carnegie Museum, Museum of Comparative Zoology, Academy Natural Sciences of Philadelphia, and the Museum of Zoology, University of Michigan. The type locality is Palmetto Park, Ottine, Gonzales Co., Texas. November 11, 1971.

Discussion — *Stenotrema leai cheatumi* is most closely related in form to *Stenotrema leai leai* (Binney) (fig. 10-11). *Stenotrema l. cheatumi* differs in the following respects: it is smaller, more depressed than *S. l. leai* and has, on the average, fewer whorls, is much less hirsute, and has a much larger fulcrum. Radially-lengthened granules are absent on the embryonic whorls but cross-striae are present. *S. l. cheatumi* differs from *S. leai aliciae* (Pilsbry) (fig. 12-13), in the same features that differentiate it from *S. l. leai.*

The *Stenotrema leai* complex is as yet unresolved. Pilsbry (1948) made *S. monodon* (Rackett) synonomous with *S. leai.* Pilsbry in 1940 differentiated *S. leai leai* from *S. leai aliciae* in that, "the parietal tooth is higher in *S. monodon,* and the axial end continues in a tapering ridge, at the end curving partly around the axis." *S. l. leai* is also separated from *S. l. aliciae* by its open umbilicus while the umbilicus of *S. l. aliciae* is generally imperforate. In Texas, *S. leai leai* is usually found only as a fossil, while *S. l. aliciae* is usually found only in the living state (Cheatum and Fullington, 1971). In almost any series from the same locality, variants may be found that conform to either *S. l. leai* or *S. l. aliciae.* Due to these facts, I am giving *S. leai cheatumi* only subspecific rank until the *Stenotrema leai* complex is further studied.

I am naming this subspecies in honor of the late Dr. E. P. Cheatum. This article was actually begun by him but he was unable to finish it. The work on the two gastropods named here was the last of many such endeavors accomplished by Dr. Cheatum.

LITERATURE CITED

Blair, W. F. 1950. The Biotic Provinces of Texas. Texas Jour. Sci. 2(1): 93-117.

Cheatum, E. P. & R. W. Fullington. 1971. The Recent and Pleistocene Members of the Gastropod Family Polygyridae in Texas. Dallas Museum of Natural History, Bulletin I, Part I, pp. 41-43.

Dalquest, W., Edward Roth and Frank Judd. 1969. The Mammal Fauna of Shulze Cave, Edwards County, Texas. Bulletin Florida State Museum, 13 (4): 205-276.

Pilsbry, H. A. 1940. Land Mollusca of North America (north of Mexico). Acad. Nat. Sci., Philadelphia, Monograph no. 3, 1 (2): 676-681.

Pilsbry, H. A. 1948. Land Mollusca of North America (north of Mexico). Acad. Nat. Sci., Phildelphia, Monograph no. 3, 2(2): 1099.